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HISTORY

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Remembrance of Tree Rings Past

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The 120-Year Dry Spell

By FRED GARRETSON

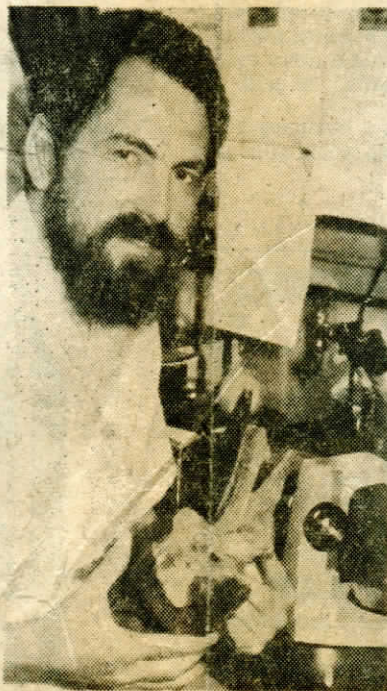
California has experienced at least one local drought that lasted 120 years, according to a U.S. Geological Survey scientist.

David Adam found evidence of this prolonged drought in the remains of a lodgepole pine tree buried for more than 900 years in what is now a swamp near Myers Grade, six miles south of Lake Tahoe.

The discovery was made at a spot only 20 miles from the edge of the highlands of the Mokelumne River watershed. This section of high Sierra is vital to the economy of the Eastbay because 95 per cent of the water supply consumed by 1.1-million residents of the East Bay Municipal Utility District comes from winter snowfall in the Mokelumne River highlands.

The new discovery indicates this vital section of the Sierra Nevada can suffer worse droughts than were anticipated by modern water engineers. Northern California cities that get their water from this part of the Sierra are now suffering the second year of the worst drought in recorded history, and there is no indication how long the drought will last.

Adam uncovered the lodgepole pine stump at a spot called Osgood Swamp. The tree established itself during a drier time and was finally killed by rising water and sediments when the drought ended. The tree



DAVID ADAM
Holds drought evidence

died 910 years ago according to radiocarbon dating tests, Adams said.

Adam said the tree was a seedling about the year 920 A.D. and survived through the long drought until about 1040 A.D. when it was drowned by re-establishment of Osgood Swamp, which dried up during

the drought years.

"Although the drought must have been severe enough locally to cause lower water levels in the swamp for a long time, it cannot have been too extreme," Adams said. "A juniper tree within a few miles of the swamp is at least 1,700 years old and still growing, and obviously survived the local drought recorded by the Osgood Swamp stump."

He said variations in the intensity of the drought could be seen in tree rings where a 20-25 year cycle is in evidence.

"The stump does not tell us how long our current drought will last, but it should warn us to be prepared for long periods of dryness that have occurred at least locally in the past and could occur again," Adam said.

Osgood Swamp, where the tree stump was found, was drained in 1963. The area was far too wet for the growth of a lodgepole pine tree in modern times.

"Under normal conditions a tree will produce its narrowest rings during the driest years when it is short of water. This tree was growing under exactly opposite conditions, however, so the narrowest rings represent relatively wet years, when the tree almost drowned and growth was slow," Adams said.

The report is being studied by EBMUD officials.